

## ABSTRACT

A method and apparatus for increasing fractionation capacity and efficiency within an existing distillation column having preexisting mass transfer surface structures with a multiplicity of openings for vapor-liquid contact is provided comprising microdispersers, either individually or in combination, installed to convert target areas of select openings to achieve an optimal column performance without resorting to a full or partial replacement of the preexisting mass transfer trays. A kit for assembling an increased capacity and efficiency fractionation tray includes installation instructions, fastening means and microdispersing bubble promoters and valves is also disclosed. A system for increasing capacity and efficiency of preexisting trays within a preexisting column is shown whereby microdispersers are used in combination with a revamp of the downcomer structures or other existing structures. The microdispersers may also be used in the construction new fractionation towers.